

Playback

Monthly Newsletter

July 1995

Volume 5, Number 7

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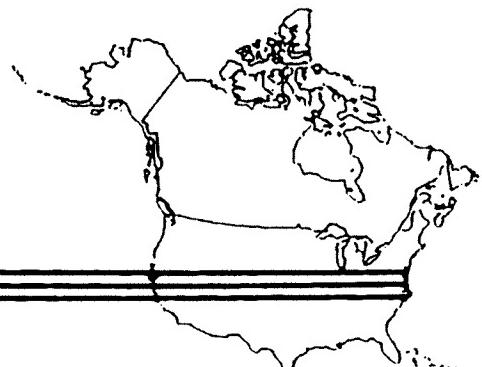
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The above companies and publications have generously decided to sponsor the MII Users Association with an annual gift of \$250.00. We encourage members to show their appreciation to our Corporate Sponsors by supporting these organizations.

If your company is interested in becoming a corporate sponsor of the MII Users Association for the low annual donation of \$250.00, call User Headquarters for details. Benefits include a prominent company listing with your logo on the inside front cover of each newsletter, a complimentary subscription to the newsletter, a certificate indicating your good standing with the association, and patronage from association members.

MII Playback is a monthly newsletter published by the MII Users Association for the benefit of the members.

Executive Director David R. Gardy

Publications Editor Jonathan Trenn

The opinions expressed in this publication are those of the individuals quoted and do not necessarily reflect the position of Panasonic, the MII Users Association, or its members. Neither Panasonic nor the association assumes responsibility for the statements made herein nor for the alteration of any technical equipment. It is advised that you consult an authorized Panasonic dealer before attempting to repair equipment on your own.

The MII Users Association can be contacted at:

MII Users Association
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Supporting Our Supporters.....

Executive Commentary

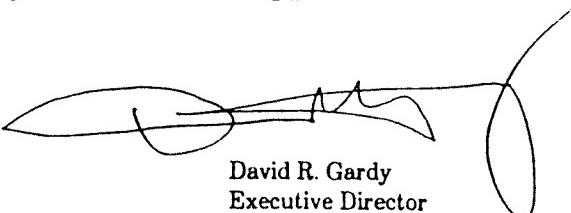
July 1995

You'll notice that the newsletter advertising page count has risen over time, as companies have realized the growth of MII in the marketplace and the special target demographics that this publication affords them. I know I speak for all the users when I say we truly value the support of our organization by our advertisers. It's important before any of us writes the next purchase order, to make sure that the manufacturers and service providers who advertise within our hallowed pages be given an opportunity to bid on the effort. Many have been supporting MII and our association for years and they deserve our support. This includes our corporate sponsors listed on the inside front page of the newsletter. Supporting each other is also important. Remember, our association headquarters acts as a clearing house to refer work from one MII house to another. Need an

MII crew in Minneapolis? Save your client some money and farm it out to one of our MII brothers in the Twin Cities. You'd be surprised how successfully this approach has fostered MII format growth.

Finally, at press time, Jonathan Trenn, our association administrator, was about to become a father. Please be patient over the next few weeks as various Gardy McGrath employees try to step into his shoes while he's on paternity leave with his new baby boy, which he better name after me (just kidding). We all are grateful for the job he's done over the last year and wish him the best of luck with the new addition.

Keep those MII machines cool during the heat wave, and thank-you for your continued support.



David R. Gardy
Executive Director
MII Users Association of America

The Association needs your 1994-1995 membership dues!!!!

*This form and a \$25.00 fee are required to continue membership in the association and receive this monthly newsletter. Please don't hesitate. (Thanks to the many who have already sent in their membership fees!) We have tried to make this form as simple as possible. Please take the time to fill it out now. We would appreciate it if you would take a few extra minutes to provide the information in the "optional" section so that we may better serve the association. This form and your \$25.00 dues must be returned *immediately*. Make checks payable to the MII Users Association of America. Return to: MII Users Association of America, c/o Gardy-McGrath (Int'l), Inc., 1950 Roland Clarke Place, Reston, VA 22091. Phone (703) 620-6000, fax (703) 620-0451.*

Membership Registration Form

Date: _____

Renewal: _____

New Member: _____

Contact Name: _____

Company Name: _____

Mailing Address: _____

Phone Number: _____ Fax Number: _____

Type of Business/Services: _____

Optional:

How did you hear about the association? _____

Check all that apply: Duplication facility (List additional formats below) _____ MII Rental Facility _____

MII User _____ MII Owner _____ MII Dealer _____ MII Repair Center _____ Other _____

If you own MII, how long have you had it? _____

What model numbers? _____

If you do not own MII, are you planning to get it? _____

Additional Comments/Equipment: _____

Check number: _____ Name on Check: _____ Date: _____

Check or Credit Card (VISA or MC only) Number: _____

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Dues cover the period from Sept. 1, 1994 through Sept. 1, 1995. Below is for office use only.

Received: _____ Membership List: _____ Mailing List: _____



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Contact the association if you would like your company added to this listing.

Alpha Video Edina, MN
(612) 896-9898
Complete MII Edit Facilities
AudioVisual Headquarters
Rancho Dominguez, CA
(310) 885-4200 Rent out 3-AU-65's, they have shipping cases.

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Avonix Brookfield, WI
800-222-6050
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Broadcast Video Products
480 Main St Armonk, NY
(914) 273-6649, Jack Miller

Communications Televideo Ltd.
(CTL) Silver Spring, MD
(301) 585-6311AU-65, D-3
AJD350 Editor, D-3 AJD310
Camcorder

Cinequip St Paul, MN

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Davis Audio Visual Inc Denver, CO
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ECI Video Dallas, TX
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Metrovronics, Inc. Los Alamitos, CA
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Camcorder WV-F700/AU 410

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(313) 677-4400
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Indianapolis, IN
(317) 639-6163 Sony M7 Cam., AU 500 Portable MII Deck

Video Replay Chicago, IL
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Inter-cite Video Montreal, Quebec
(514) 342-4545
WV-F700/AU-410's, WV-F7000, AU-520S, WV-F500/AU-45H, AU-63H,(2) AU-65H ,(1) AU-W33H, (1)AU-W35H.

Smith Sound Productions
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News from...

PANASONIC

PANASONIC EQUIPMENT SELECTED FOR NEW PORTLAND, OREGON ROSE GARDEN ARENA

Panasonic Video Displays, Digital Video Equipment Chosen

Portland, OR (July 1995) -- When the Rose Garden Arena - the new home of the Portland Trail Blazers professional basketball team - opens in early October, it will be equipped with advanced large-screen video displays and professional video equipment from Panasonic Broadcast & Television Systems Company (PBTSC), Secaucus, NJ.

The Portland Trail Blazers have made a multi-million dollar purchase of Panasonic professional and consumer products for the Rose Garden Arena. The Panasonic equipment to be supplied for the arena will include four large-screen video displays, broadcast video equipment, televisions, professional and consumer audio products, office copiers and point-of-sale systems.

"In our judgment, Panasonic outperforms its competition in every way," said Marshall Glickman, President, Blazers and Oregon Arena Corporation. "The showcase of our deal is the new generation of Astrovision. Our fans will get much better resolution and a bigger screen size. Behind the scenes, we will support our entire broadcasting business with a state-of the-art digital control room, featuring Panasonic professional broadcast equipment. And also, perhaps most important, this is a terrific company to work with."

Steve Bonica, President, PBTSC, said, "Panasonic is very pleased that the Portland Trail

Blazers have chosen products at the leading edge of video technology -- Astrovision large-screen video displays, D-5 digital VTRs and digital signal processing cameras -- for a venue that is the most ambitious multi-purpose indoor arena in North America. The Rose Garden is a testament to the systems design expertise and vast product offerings Panasonic can provide for arenas, stadiums and public facilities of any size."

The company's Special Markets Division will coordinate the integration of the Panasonic products into the arena.

The Rose Garden Arena will feature Panasonic's four-sided, center hung Astrovision large-screen video displays. The crystal-clear, high-resolution images produced by the four (9.6 feet high x 13 feet wide) Astrovision video displays will give every spectator the best possible view of the fast-paced action. In each of the four corners of the arena concourse are Media Totems equipped with Panasonic 13-inch televisions. Each totem will be configured into a two-screen (high) by two-screen (wide) information station for spectator viewing.

For the arena's video production requirements, Panasonic broadcast video equipment will be used for the on-air broadcast and post production of Trail Blazer basketball games as well as other arena events. The Panasonic AQ-23W portable 16:9/4:3 switchable digital processing cameras will acquire the video images for viewing on the Astrovision displays, videowalls and on the cable telecasts. Panasonic's D-5 10-bit digital component VTR's have been purchased to allow the Trail Blazers to make high quality video recordings.

More than 675 Panasonic televisions (ranging in size for 10 inches to 31 inches) will be located in the arena's executive suites, food concession areas, on eight Media Totems and in other

locations throughout the arena. In the executive suites, Panasonic's professional Ramsa audio speakers and Technics stereo audio rack systems will be equipped for spectators' listening pleasure.

In addition, interactive multimedia Media Totems, equipped with Panasonic large-screen televisions, 3DO interactive games machines and product displays, will be located in one quadrant of the arena on multiple concourse levels, providing information and entertainment for event attendees.

"Panasonic's Media Totem is just awesome," added Glickman. "3DO stations...product displays...all kinds of interactivity. Panasonic is the perfect media totem partner - this will be one of the coolest corporate showcases in the United States."

The Media Totems will serve as a way-finding device for patrons and information stations, as well as an enormous marketing structure. The Totem is wedge-shaped, rising about 23-feet, 9-inches from

the Main Concourse, while approximately 8-feet wide at its widest point. The Main totem rises from the main level through the preferred level, offering interaction in both locations. A second Totem reappears on the Upper Level, standing about 16-feet tall and 5-feet wide. Both Totems (main and upper) will feature a scoreboard system with Panasonic video monitors (a total of seven monitors offering sports, product and event information), phones and drinking fountains. Both structures are fully wired with electronics capabilities and ambient sound.

Also, as part of the sale, Panasonic's sophisticated point-of-sales systems will be equipped in the food concession areas and Panasonic high-speed office copiers will be used in the arena office.

THE MANY GENERATIONS OF MII

Ontario, CA (July 1995) — How many generations can be used in working with MII? Larry O. Dean happily reports 35!

Dean, owner of R-VCR, was creating a live video montage entitled "*News From Home*" to promote a news magazine show. The tapes, originally on a SVHS camera had images compressed to quarter size and positioned by a Panasonic AVES mixer. A Prime Image Switch mixed the previously recorded montage bed playback from MII with DSK external key shapes generated by computer for variety. All video was Y/C connected to eliminate any NTSC decoding.

As the montage was built, new images would eventually effectively cover older so that "only" about the twelfth generation or less video elements would be fully visible at the top of the heap. Since all of the elements of the montage remain as live video, not frozen, the piece maintains its rich visual content -- a good idea for a promo that could see

repetitive play. This was done entirely in analog with only the initial pix compression and the key shape being digital effects.

The AU/63AU65 edit pair provided frame accurate inserts. Just as importantly the three cable component connection feature meant that the layback would be a virtual perfect copy of the developing master. In fact, since the layback is also a complete version of the montage, with mixed audio (leaving the master un-mixed for future revision), it was used to make the SVHS air copy and VHS demos. Or the 38th generation, if anyone's still counting.

Larry is owner of R-VCR, a production company in Ontario, CA. He specializes in production television programs for local commercial and cable stations. He also does extensive video work for Valley College, another MII facility.

16TH ANNUAL TELLY AWARDS SEEM TO HAVE "MII" WRITTEN ALL OVER THEM

The 16th Annual Telly Award treated certain members of the MII Users Association of America quite well.

The awards are given each year to showcase and give recognition to outstanding video and productions along with non-network and cable commercials. Winners and finalists have come from a large cross-section of agencies, production companies, television stations, cable operations, and corporate video departments.

Entries are judged against a high standard of excellence, not against one another. The winner of a Telly receives a silver statuette perched upon a base. Finalists receive a bronze statuette.

There are several categories in which to win an award:

- a local commercial that has appeared in one market. Local commercials may have run on broadcast television or on local cable.
- a regional TV or Multi-Market cable commercial that has appeared in two or more markets. Spots which have run on a national cable system are eligible.
- non-Broadcast Film/Video Productions and TV Programs.

Awards are chosen on a 10-point basis. Judges are top production professionals.

Optical Audio Productions is proud to announce that two of its video productions have been awarded Bronze Tellys. Telly Awards are presented each year to exemplary non-broadcast video productions.

The first Telly was presented to *Louisville*, a one hour historical documentary on Kentucky's largest city. Produced for the city of Louisville by **Jacoby Communications and Optical Audio Productions**, it also won the Professional Video Association's Prova Award as the best one hour documentary.

Quality of Life, an eleven minute promotional tape produced for **Fort Collins, Inc.** by Optical Audio Productions, was also awarded a Bronze

Telly. A remake of the original tape which received an Award of Excellence by the American Development Council when it was produced in 1988.

Optical Audio Productions has been awarded a total of seven Bronze Tellys and one Prova in the past four years.

Congratulations to **Mike Khoury** of Optical Audio Studios.

Gardy McGrath International, Inc., a full-service video production company located in Reston, VA recently received three Telly Awards for excellence in animation.

All three animations were completed on Lightwave 3D software and rendered on the Raptor.

GMG was awarded a Silver Telly for the intro to a promotional piece for *The Dream Network*, a new urban inspirational cable network. **Peyton Duncan**, director of the animation department, created the spot. It features a dove soaring a city skyline at night. It flies to a torch, setting off the torch's explosive fire, illuminating the tops of buildings to spell The Dream Network.

GMG also won a bronze Telly for designing a logo for *Capital News Network*, a Washington, DC based news network broadcast to eighty outlets throughout the country. It features the Capitol dome integrated with a surrealistic spinning globe in Lightwave 3-D, and rendered on Raptor with Screamer Net software from NewTek.

The third Telly was a bronze for **C.P. Claire**, a New England manufacturing company.

Dave Gardy, president of GMG, noted "The RISC-based processor component greatly accelerates our turn-around time for complex pieces. It is truly a phenomenal machine."

Video Management Systems (VMS), an Indianapolis based production company recently brought home three bronze Tellys.

Two productions were for Park Avenue Productions. *"The Art of Effective Communication"*, and *"Skills Education"* are two short videos designed to educate high school students. *"Steam Trains, How They Work"* was the third production.

Frank DeFede, owner of Technimedia, a Stuebenville, OH production company, recently was awarded two Bronze Tellys. In the Educational Video category, Tech Prep and Industrial Technology was chosen. In the safety category, *"Cosigner Rights"* was a winner. *"Cosigner Rights"* was also presented with a State Award of Excellence at the Ohio Lifesavers Conference.

But that was not all that Technimedia won. **Education Associates, Inc. (EAI)** of Frankfort, KY keeps Frank busy. Busy making videos and busy winning awards, that is. With **Shelly Mauer** of EAI serving as Executive Producer, Technimedia won the a Bronze Plaque for *Positive Attitudes: Success in Getting a Job* at the 42nd Columbus International Film & Video Festival. The National Educational Film & Video Festival gave EAI a bronze apple for *A Dropout's Life: Go Back to Your Future*.

"Proms and Pacifiers: Teens as Parents" was a Blue Ribbon Winner at the American Film and Video Festival. A recruitment video for VALEES (Valley Association Education for Employment System) won "BEST OF THE BEST" by the Illinois Vocational Educational Consortium.

The ABC-CLIO bestowed twelve honors to Technimedia produced EAI videos. Five were Four Star Winners: *"Problem Solving in the Job World"*, *"Attendance: An Employer's Expectations"*, *"Teens Decisions For a Lifetime"*, *"Find The Job World"*, and *"Follow My Instructions"*. Seven more were awarded Three Stars: *"Teens, Temptations, Troubles"*, *"Checking and Savings"*, *"Job World Literacy"*, *"Skills for Living Alone"*, *Phonework: Lifeskills"*, *Phonework: On the Job.*", and *"Apartments for Rent"*.

These tremendous successes inspired EAI to renew their contract with Technimedia for fifteen more videos. EAI is nationally known for their quality educational products in the arena of Employability Skills, Work Maturity Skills, Life Skills, At Risk Skills, and Drug Education.

SUMMER INTERNS AVAILABLE!!

Question: What has 5 full MII on-line suites, 8 MII camcorders, 3 MII cuts-only suites, a digital audio workstation that lays audio back to MII, 7 Video Toasters, a Steadicam EFP and much, much more?

Answer: The Savannah College of Art and Design, one of the best equipped colleges in the USA, and certainly the largest MII teaching facility.

Obviously our students are trained on the best Panasonic equipment in the world, and as students, they are eager to work as a summer intern in your MII production facility. Students at SCAD come from all over the 50 states and would be in an internship in their home state.

Interested? Contact John Drop, Video Department Chair,
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or write to
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PANASONIC MII TRAINING VIDEOS

NOW AVAILABLE!!!!

This set of three 30 minute videos feature preventive maintenance, troubleshooting, applications overview, upper drum replacement, and basic service procedures. Specifically, items covered include the following:

(I.) PANASONIC MII EQUIPMENT TRAINING-LESSON I

RECOMMENDED CLEANING AND MAINTENANCE PROCEDURE

Sections-

- 1.0 - Upper Drum
- 2.0 - AC Head Stack
- 3.0 - Field Cleaning the Portable Unit
- 4.0 - Tape Path
- 5.0 - Cleaning the Pinch Roller
- 6.0 - Cleaning the Capstan
- 7.0 - Cleaning the Posts
- 8.0 - Cleaning the Fixed Posts
- 9.0 - Brush Assembly
- 10.0 - Cleaning the Earthing Assembly
- 11.0 - Final Disassembly and Cleaning
- 12.0 - Emergency Tape Unloading Procedures
(+ Conclusion)

(II.) LESSON 2 UPPER DRUM REPLACEMENT AND ELECTRICAL ALIGNMENT

Sections-

- 1.0 - Cleaner Roller Removal
- 2.0 - Mounting of Fixing Plate for Tip Protrusion Gauge
- 3.0 - Video Head Tip Protrusion for Measurement
- 4.0 - Removal of Upper Drum Assembly
- 5.0 - Upper Drum Re-assembly
- 6.0 - Eccentricity Gauge Adjustment
- 7.0 - Simplified At "x" Valve Adjustment

(III.) LESSON 3 APPLICATIONS AND OVERVIEW (Including basic troubleshooting)

Sections-

- 1.0 - Introduction
- 2.0 - Stand Alone Single Machine Configuration
- 3.0 - Machine to Machine (cuts only applications)
- 4.0 - A/B Roll Editing Systems
- 5.0 - MII Menu and Setting Instruction



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24 HOUR FAX LINE

(Virginia residents must add 4.5% sales tax to all orders.)

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Alleghney Electronics, Inc. 800 Chestnut Ave. Altoona, PA 16601 (814) 946-0871	Tri-State Video Services, Inc. 1379 Pittsburgh Rd. Valencia, PA 16059 (412) 878-1630	Klaus Radio, Inc. 8400 N. Allen Rd. Peoria, IL 61615 (309) 691-4840	Electronic Design & Service 6922 San Fernando Rd. Glendale, CA 91201 (818) 843-6199
Colortone Camera, Inc. 76 S. Central Ave., Rte. 9A Eimsford, NY 10523 (914) 592-4151	Videoplay Industries, Inc. RT30 Tolland Ind. Park Tolland, CT 06084 (203) 872-9195	Lines Music Company 219 S. Jefferson Springfield, MO 65806 (417) 862-5533	Industrial Broadcast Services 5436 W. Mingo, Suite F Tulsa, OK 74146 (918) 663-5126
Communications Televideo 9301 Georgia Ave. Silver Spring, MD 20910 (301) 585-6311	Midwest	Modern Communications, Inc. 1733 Larkin WMS Rd. St. Louis, MO 63126 (314) 343-0800	IVS 7925 Auburn Blvd. Citrus Heights, CA 95610 (916) 725-6600
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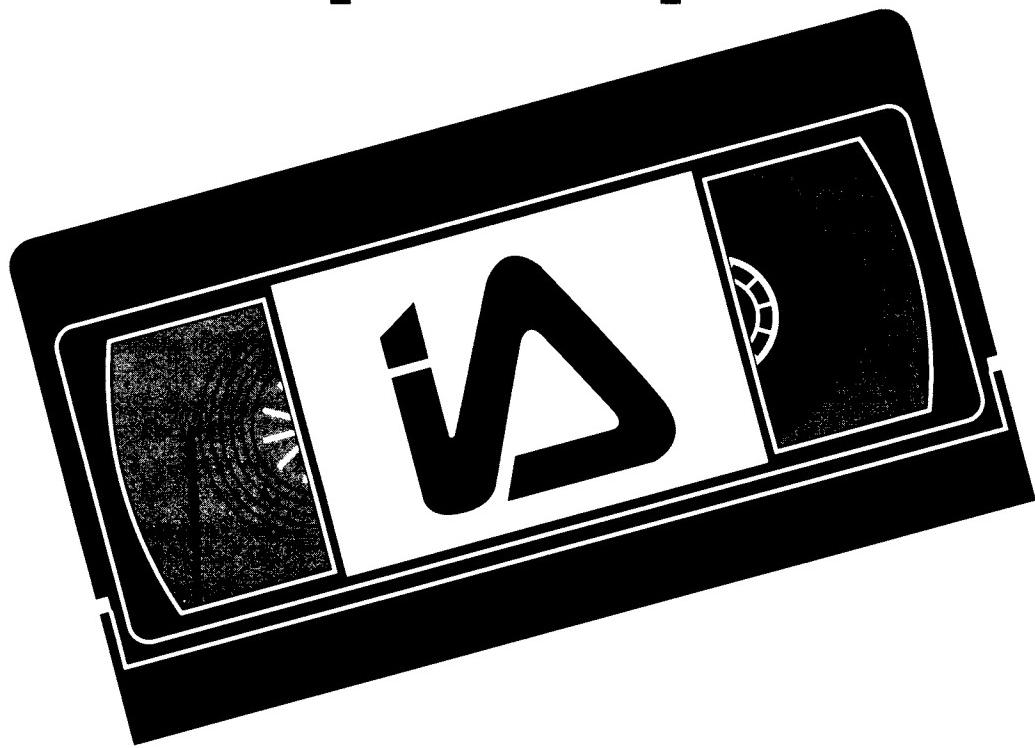
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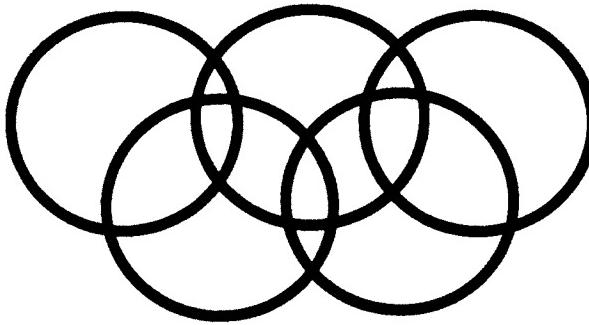
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If you have equipment you would like included in the next Trading Post, please contact us in writing, either by fax or mail at MII Users Association of America, c/o GMG International Inc., 1950 Roland Clarke Place, Suite 100, Reston, VA 22091, fax (703) 620-0451, toll free 800-966-1030. *Please contact us when the equipment is sold.* □

Association Membership

If you are not currently a member of the MII Users Association of America and are interested in joining. Please fax or mail us the following information: company name, contact persons name, mailing address, phone and fax numbers (if available), if you do or do not have MII and which machines (make & model) you have. We may be contacted at:

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c/o GMG International, Inc.
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Reston, VA 22091
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or call toll free at 800-966-1030. □



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USED MII TAPE ? ? ?

There have been many used tape salesmen calling lately hawking, among other tape formats, MII. Our small public television station purchased six AU-65 MII machines a little over a year ago to delay playback of programs sent from PBS by satellite. The significant cost reduction offered by these used tape companies has seduced my budget into testing these waters. We would be interested to know if any other MII users have experience with used MII metal tape. Is there any noticeable machine wear or pitfalls experienced with this used tape? Are there any special "flags" to watch for with the used MII tape? What is the expected life of MII metal tape anyway? So far, all the tape we have received has been Panasonic tape.

If you have any information or resources on this subject you would like to share with me, I can be reached at:

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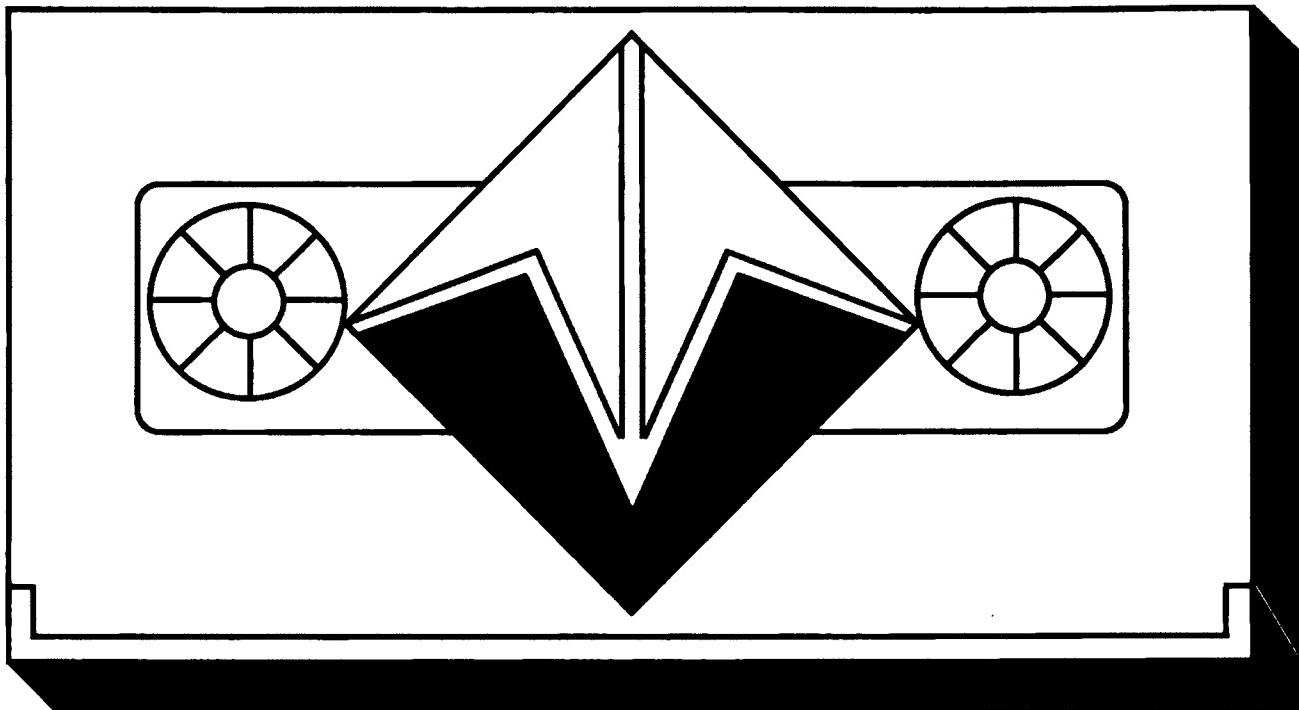
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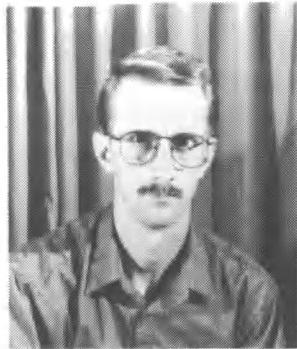
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The KREGEL Report

Mark Kregel is owner of KTS Television & Film in Aberdeen, MD. He is a recent TV Production/Filmmaking graduate (Mass Communication) from Towson State University in Baltimore. During college, he completed internships at both Maryland Public Television and the Discovery Channel. He is currently building an MII edit suite for the production of TV broadcast documentaries.

Editing Systems: A Comprehensive MII Overview Part Two

In last month's article (Part I: A Comprehensive MII Overview), we presented an overview of the dominant video tape formats and defined four broad categories (levels) of tape format quality. These levels were: consumer, industrial and corporate, broadcast NTSC, and broadcast HDTV and beyond. Additionally, into these categories we placed the following video tape formats - Consumer: VHS, 8mm, Beta. Industrial/Corporate: (primary) SVHS, Hi8, Umatic (also) UmaticSP, BetaCam. Broadcast NTSC: (primary analog) BetaCamSP, MII, i" (primary digital) D-1, D-2, D-3, D-5, DCT, DVCPRO, Digital S, Digital BetaCam. Broadcast HDTV and beyond (D-1, D-5, DCT). Also last month we touched upon the use of disk storage for video production systems. In this month's article we will touch upon how these various tape formats can be integrated into various editing systems, and how to achieve and maintain a desired system quality level while building such a system.

A large video production project involves many steps. Some of the more common titles

associated with these steps are as follows: planning, story-boarding , scripting, budgeting, producing, post producing, off-line, on-line, etc. However, in terms of hardware, we can boil video production down into 3 basic phases. These in their most basic form are acquisition, editing, and distribution. In acquisition we go to a field or studio shooting location with a video camera system and we lock (record) our camera image signal into a storage medium (tape or disk). Editing involves taking this raw stored medium (tape or disk). Editing involves taking this raw stored footage and mixing it with other footage or titling graphics, etc. to create a final video product. Distribution might involve anything from a VHS copy of the product to a 1" broadcast master or even a disk server version of the product. It is possible to start out with 1" type C studio based acquisition and to end up with a VHS final dub. It is also possible to take UmaticSP acquisition all the way through to broadcast. There are almost unlimited possibilities in building such video production chains.

In last month's article we talked about defining a specific quality level that you wish to work at with your video production construction. As an example SVHS/Hi8/Umatic quality is closely associated with industrial/corporate level work (although higher format use is common). For this SVHS/Hi8 level of quality, Y/C signal use is the norm, and in general you are working with about 400 lines of horizontal resolution. For maximum quality in broadcast NTSC type applications, you need to step up to one of the professional 1/2" formats (BetaCamSP or MII) or into the evolving digital tape formats. Here it is possible to take full advantage of YUV, Y, Pr, Pb or 4:2:2 component signal processing, and with proper care these formats. are almost transparent to a camera putting out 750 horizontal line of resolution. When possible always build a margin of safety into your system

as you can always "work down" dp to speak if needed. On the other hand it is basically impossible to "work up" into a higher quality levels than your equipment might currently allow. Such a situation would necessitate additional equipment purchases of having to go "out of the house." Having said this, let's delve a little more into the specifics of editing systems.

Some years back, a "state of the art" video editing suite consisted of two or more source decks (VTR's) to allow A?B roll (using a broadcast grade format), a record deck, an edit controller, a switcher, titling/graphics and keying related components, a wave form monitor, an audio board, and other mixed cabling and support equipment. In short you had a fairly large volume of rack mount equipment and such a system was both large and visually impressive. Please note that although I am speaking of these systems in the past tense, there are still countless such systems in existence, they are still the mainstay of the broadcast industry, and they are still the mainstay of the broadcast industry, and they still produce an extremely potent output in terms of signal quality. On the flip side of these traditional systems we now have the "new kids on the block", the "digital" and "nonlinear" based systems. These new systems in their most pure form consist of a single deck (VTR) sitting side by side a personal (or desktop) computer. The computer reads from the deck (VTR) as needed, puts this video information into hard disk storage, then edits material within the computer as desired (so called non-linear). As a final step the computer spits out the final product for distribution (either back to tape or otherwise).

For illustration purposes, let's now exaggerate two extreme points of view in determining which of the above systems to buy or build for your particular production needs. One of these extremes is to simply look at the hype, fancy print and catch phrases of modern video advertising. At this extreme you will be enamored by the latest "digital", desktop", and

"nonlinear" editing systems and this is not necessarily bad depending upon your needs. However, as a side note, two phrases that are very carefully omitted in these nonlinear advertising campaigns that you should definitely become aware of are "rendering time" and "signal quality loss through compression" Some of these nonlinear systems can take as much as 15 hours or more to render a 30 minute program at the SVHS quality level when dissolves and other fancy transitions are used. Also the use of compression is inherent in every major nonlinear system currently marketed. At the other extreme of making video system purchasing decisions you have the person who is obsessed only with system output quality. This person will want the best possible broadcast grade signal from his or her system for the money spent. At this extreme you will likely actually gravitate to the tradition linear edit system, especially if it is component signal based (color difference YUV or Y, Pr,Pb). Though dated, the output from these traditional analog format systems is still extremely high by most all standards, and few of the nonlinear desktop systems have yet to come anywhere close to reaching parity with most of these traditional systems (BetaSP quality and above). Where do you draw your particular line for your particular video productions needs? Let's look again at the video production chain acquisition, editing and distribution.

Acquisition involves recording your video signal (camera output) onto a specific recording medium. This medium has traditionally been tape, with the new alternative being disk. It is important to note here that the physics of recording onto both tape and disk is virtually identical (magnetic based recording). Surface compounds used within disks and on tapes are often very similar, and the read/write heads are also very

comparable in overall design (even between analog tape and digital disk systems). The primary differences between tape and disk are best boiled down as follows. First, disk tends to offer much faster data access times (random access) than tape. This access is almost instantaneous to different quadrants of the disk, and when applied to editing systems this is where the term "non-linear editing" has its origins. Disk systems write and read data like a high speed phonograph record using a movable arm. Tape on the other hand must be shuttled through a transport system to access a specific portion of the tape. Disk storage space however is generally much more expensive than equivalent tape storage space. This disparity in expense can be on the order several hundred or even a thousand to one for a given time segment of video. For tape there are countless camera and tape format (record deck) combinations possible. For sheer economy of scale and quality, it is still virtually impossible to beat tape for acquisition.

This acquisition step is the supply line and food chain that feeds your video editing system. The best video switcher in the world, be it a traditional switcher/edit controller, a desktop computer, or a nonlinear edit system is useless unless it has a signal source to input and work with. Additionally, on the output side of this equation you must either have a deck or some other distribution means to record, store or otherwise carry away the finished video product. Traditional systems use traditional studio VTR's in either a cuts-only or A/B roll capability, and use an additional VTR (or VTR's) to record the signal. Cuts-only systems are usually two deck systems, and A/B roll capability, and usually have three or more decks. Desktop computer systems can be either a switcher/edit controller package that drive decks in the traditional manner (two or three deck systems), or they can also incorporate hard disk based "nonlinear" storage/edit systems. Such hard disk "nonlinear" systems can augment multiple deck based systems (acting like yet another VTR) or they can completely form an

internal computer based editing system, only a single deck may be required to both input and output to and from the system.

Please also note here that in terms of current advertising the terms "digital" and "desktop" do not necessarily imply a "nonlinear" system. If you buy D-5 or Digital Betacam decks to drive an A/B roll system, you can build the entire suite completely digital (digital switcher/edit controller) and it will still be completely linear (linear i.e. tape). Only when you introduce hard drive storage or other random access storage into your editing system can you step into the "nonlinear realm". At this point let's switch gears yet again and look at some of the other digital and analog pro and con related issues.

The movement to digital video production is taking place on many fronts. You have the new digital tape formats. You also have the expanding proliferation of digital switchers, DVE's, titlers, paint boxes, etc., that on one end of the spectrum can now all actually be housed in a single desktop computer. You have the nonlinear computer based edit systems that work off of hard drive storage, and you also have the new digital signal processing camera systems. Finally you have digital signal distribution such as the new satellite based broadcast systems. In contrast to this "digital revolution" you also have the analog tape formats and other analog production devices that have been the mainstay of video production work for the last several decades.

In terms of digital versus analog and "which is better" it is important to keep in mind one last broad generality. This is to signal processing and how these relate to digital vs. analog issues. In short you have analog storage (tape) and you have digital storage (tape, disk, other). You have analog signal processing (switchers, etc.) and you have digital signal processing (everything from cameras to computers). The dynamics of signal storage vs. signal processing

are entirely different and this should not be forgotten. In terms of editing, it is possible to have analog tape driving both analog or digital signal processing edit systems. Likewise it is possible to have digital storage (i.e.) disk driving both analog or digital edit systems. When someone talks about "analog" or "digital" it is important to note these specifics.

Digital signal processing is a great hallmark of modern computer and information processing systems. This influence is not being lost on modern video technology. We now have DSP (digital signal processing) cameras, digital switchers, digital effects, titling, graphics, animation, etc. However, when it comes to digital storage, digital tape and digital disk remain the primary workhorses right along side the traditional analog tape formats. It is entirely possible to build a complete digital video production system from tape or disk all the way through to distribution (at a price), and this might be the inclination of the aforementioned "advertisement and hype" oriented buyer. However, another very reasonable alternative in today's marketplace is to take full advantage of DSP (digital signal processing) whenever and wherever possible (camera, editing systems, etc.), but in terms of storage to still use an analog tape format. Analog signal processing has some rather notable drawbacks compared to solid state digital processing technologies. The most notable of these are the generational losses associated with analog systems. However, contrary to popular digital hype, analog tape storage is very respectable at what it does, even when compared to the digital tape formats. As an illustration just keep in mind that the scanning taking place at the camera's CCD's is analog in the first place, and so are the scanning lines forming the picture on your home television set. What is one of the primary standards of quality currently being strived for by many if not most of the higher end desktop and nonlinear systems? Just look at how many times has the term "BetaCamSP quality" has been used in recent sales and advertising literature for these

digital desktop and nonlinear systems. And guess what? As we all well know, BetaCamSP is an analog tape format.

Now enter MII, which is comparable or superior to BetaCamSP in almost every technical regard. MII is one of only two major video tape formats to record chrominance and luminance on separate tape tracks (BetaCamSP being the other). All the rest of the analog formats mix these signals onto one track. And though analog on the tape, MII studio VTR's come factory equipped with very high grade digital signal processing TBC's already built in, and this has been the case since the inception of MII machines.

What is my concluding thesis to this article? It is as follows. In building a system in today's age from scratch or even upgrading an existing video production system, it is in fact best whenever possible to stick with digital signal processing systems to include cameras, editing systems, etc. However, in terms of acquisition and storage, I would definitely not rule out the higher analog tape formats (MII, BetaCamSP) at this time, or for the foreseeable future. MII is right in line with BetaCamSP and 1" type C in terms of quality. Considering the ninety percent penetration of NTSC television into American homes, these formats are going to remain viable in the broadcast arena for years to come. The bulk of nonlinear systems out there today are well established at the SVHS (Y/C) industrial corporate quality level. However, for most of these systems there is still a large void in trying to reach the quality level of BetaCamSP, MII, 1" type C and the D-1 through 5 digital while still maintaining a reasonable cost. This is especially true in terms of YUV (analog MII) or 4:2:2 (digital) component signal use. The majority of the nonlinear systems out there today are composite of composite and component (MII and BetaCamSP quality) and some of these are very component (MII and BetaCamSP quality) and some of these are very good systems.

However, in general this is the realm where the real growth needs to take place with these desktop and nonlinear systems.

MII acquisition decks and studio VTR's are currently just a fraction of the cost of comparable digital tape format VTR's. That is one of the reasons there were more MII VTR's at this year's NAB driving desktop and nonlinear systems than ever before. In terms of component signal use, MII is one of the best if not the best analog tape format ever marketed. MII is readily capable of storing the output of DSP cameras and desktop and nonlinear editing systems with outstanding results. Should one wait another 6 months for the release of DVCPRO or Digital S (still "vaporware") at approximately twice the cost of current available MII machines. In terms of budgeting, this is a matter that should deserve some serious consideration to anyone currently building or upgrading a video production system.

NEXT MONTH: MII/DSP editing systems outlined with regards to maximum signal quality for the cost, and with regards to future expendability and interformat capabilities. Look for Part 3 in this series next month.

The following terms are property of their respective owners: BetaCam, BetaCamSP, Hi8, SVHS, VHS Umatic, UmaticSP, MII, Beta, DVCPRO, D-1, D-2, D-3, D-5, Digital BetaCam, Digital S, 1" Type C.

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